



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/583,862	06/21/2006	Shuntaro Machida	ASAM.0205	4122
38327	7590	10/31/2008		
REED SMITH LLP				
3110 FAIRVIEW PARK DRIVE, SUITE 1400				
FALLS CHURCH, VA 22042				
EXAMINER				
WILSON, ALLAN R				
ART UNIT		PAPER NUMBER		
2815				
MAIL DATE		DELIVERY MODE		
10/31/2008		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/583,862

Applicant(s)

MACHIDA ET AL.

Examiner

ALLAN R. WILSON

Art Unit

2815

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 June 2006.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 and 21-26 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-11 and 21-26 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-8508)
Paper No(s)/Mail Date 6/21/06
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

DETAILED ACTION

Claim Objections

Claims 1, 21, 23 and 25 are objected to because of the following informalities:

Claim 1, line 6, the word "selas" should be --seals--.

Claim 21, line 9 and 10, the terms "fifth side" and "sixth side" are confusing. Applicants only show apertures with four sides.

Claim 23, line 6 and 7, the terms "seventh side" and "eighth side" are confusing. Applicants only show apertures with four sides.

Claim 25, line 5-6 and 10-11, the terms "ninth side," "tenth side," "eleventh side" and "twelfth side" are confusing. Applicants only show apertures with four sides.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 8-11, 21 and 23-25 are rejected under 35 U.S.C. 102(b) as being anticipated by WO 01/46664 A2 to Aigner et al. (of record, hereinafter "Aigner"). Aigner illustrates in at least figures 8A-10B with the associated text:

Regarding claim 1, Aigner illustrates in FIGs. 8A, 8B, 10A and 10B a device having:

a first wafer 1 having a first area and a second area opposed to each other with a first scribe area 20 in-between, wherein a first mechanical element 17 and a first pad 9 are formed in said first area and a second mechanical element (unnumbered - same as 17 on right) and a second pad (unnumbered - same as 9, just to right of 9) are formed in said second area, and

a second wafer 2 which [selas] seals said first mechanical element and said second mechanical element with a prescribed space 18 over each of said first mechanical element and said second mechanical element formed in said first wafer, wherein:

said second wafer is provided with an aperture 5 and 19 having a first side and a second side opposed to said first side, for exposing said first pad and said second pad, and

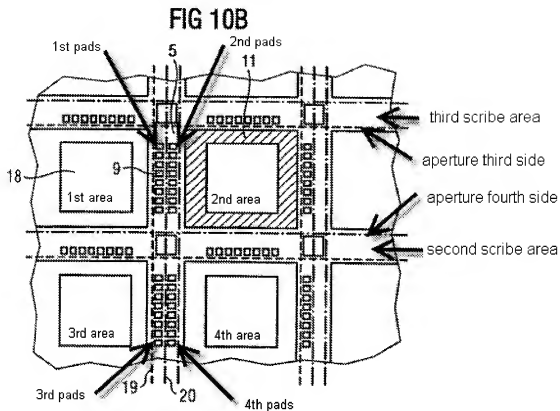
said aperture is so positioned that said first pad is placed between said first side and said first scribe area and said second pad is placed between said second side and said first scribe area.

Regarding claim 2, Aigner illustrates in FIGs. 10A and 10B (see annotated FIG. 10B below) said first wafer has a second scribe area

said aperture 5 has a third side crossing said first side and said second side and a fourth side opposed to said third side,

the fourth side of said aperture is placed between said second scribe area, said first pad and said second pad, and

the third side of said aperture is arranged to be placed between said third scribe area, said first pad and said second pad.



Regarding claims 3 and 23, Aigner illustrates in FIGs. 10A and 10B (see annotated FIG. 10B above) said first wafer 1 has:

- a second scribe area,
- a third area opposed to said first area with said second scribe area in-between, and
- a fourth area opposed to said second area with said second scribe area in-between and opposed to said third area with said first scribe area in-between, wherein:
 - a third mechanical element and a third pad are formed in said third area,
 - a fourth mechanical element and a fourth pad are formed in said fourth area,
 - said aperture 5 is so arranged as to expose said third pad and said fourth pad, and

said aperture is so arranged as to place said third pad between said first side and said first scribe area and to place said fourth pad between said second side and said first scribe area.

Regarding claims 4 and 24, Aigner illustrates in FIGs. 10A and 10B (see annotated FIG. 10B above) said aperture 5 has a third side crossing said first side and said second side and a fourth side opposed to said third side,

said aperture is so arranged as to place said first and second pads between said third side and said second scribe area and to place said third and fourth pad between said fourth side and said second scribe area.

Regarding claims 8 and 10, Aigner illustrates in FIGs. 10A and 10B (see annotated FIG. 10B above) said first wafer further has second through fifth scribe areas,

said first area is surrounded by said first (20), second, third and fourth (not shown - scribe area on opposed side of first scribe area 20) scribe areas, and

said second area is surrounded by said first, second, third and fifth (vertical scribe areas on right). Further regarding claim 10, said third area is surrounded by said first, second, fourth and sixth (not shown - scribe area on opposed side of second scribe area below areas 3 and 4) scribe areas, and said fourth area is surrounded by said first, second, fifth and sixth scribe areas.

Regarding claims 9 and 11, the machine translation of Aigner, page 7, discloses making chips 11 by cutting the scribe areas 20.

Regarding claim 21, insofar as understood, Aigner illustrates in FIGs. 10A and 10B (see annotated FIG. 10B above) a substrate 1 having a first side (at 20), a second side (not shown - at scribe area on opposed side of first scribe area 20) opposed to said first side, a third side (at

second scribe area) crossing said first and second sides, and a fourth side (at third scribe area) opposed to said third side,

a first pad 9 and a second pad formed over said substrate,

a mechanical element 18 formed over said substrate, and

a sealing layer 2 which seals said mechanical element and has a first aperture 5 opening said first pad and said second pad together, wherein:

said first aperture is so arranged as to place said first pad and said second pad between a fifth side (aperture third side) of said first aperture and the first side of said substrate, and a sixth side (right side of 19) which crosses said fifth side of said first aperture and comes into contact with the first side of said substrate is so arranged as to be placed between the third side of said substrate and said first pad and said second pad.

Regarding claim 25, it would be inherent to have fifth pad, sixth pad, seventh pad and eight pad with the remaining structure below the third pads and fourth pad. This is just a continuation of the present structure.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various

claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim 5 is rejected under 35 USC § 103 (a) as being unpatentable over Aigner as applied to claim 1 above, and further in view of U.S. Patent No. 6,838,762 to Tao et al. (“Tao”).

Regarding claim 5, Aigner is discussed above, it does not show first and second laminate films. Tao illustrates in figures 4-8 first and second laminate films. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have first and second laminate films. The motivation for doing this is found in Tao col. 2, line 45 to col. 3, line 34.

Claim 6 is rejected under 35 USC § 103 (a) as being unpatentable over Aigner as applied to claim 1 above, and further in view of U.S. Patent No. 6,630,725 to Kuo et al. (hereinafter “Kuo”).

Regarding claim 6, Aigner is discussed above, it does not show a silicon substrate and a transistor formed over the silicon substrate. Kuo disclose in figure 6 and col. 2, lines 58-59 a silicon substrate 210 (a silicon substrate is a well known type of semiconductor substrate) and a transistor 681 and 682 formed over the silicon substrate. It would have been obvious to one of

ordinary skill in the art at the time the invention was made to have . The motivation for doing this is to provide control and/or power supply circuitry (Kuo col. 6, lines 6-9).

Claim 7 are rejected under 35 USC § 103 (a) as being unpatentable over Aigner as applied to claim 1 above, and further in view of US Patent Application Publication No. 2003/0183407 to Ma et al. (hereinafter "Ma").

Regarding claim 7, Aigner is discussed above, it illustrates in FIGs. 8A, 9A and 10A said first mechanical element 17 has a movable object having a movable part. Aigner does not show a fifth pad formed underneath said movable object. Ma illustrates in figures 1-7 a fifth pad 15 formed underneath said movable object 12. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have a pad formed underneath said movable object. The motivation for doing this is to make contact with movable object.

Claims 22, 24 and 26 are rejected under 35 USC § 103 (a) as being unpatentable over Aigner (see Aigner as applied to claim 21, 23 and 25 above).

Regarding claims 22, 24 and 26, the limitation of aperture arranged in a corner formed between sides of said substrate is a "Rearrangement of Parts" (see MPEP 2144.04). It would be an obvious variation for Aigner to place the aperture in other location in the scribe lines as it placed the pads in different locations between FIGs 8B, 9B and 10B. Additionally, in light of the KSR decision the mere placement of the aperture in a different location will yield predictable results (see MPEP 2141).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: See the Information Disclosure Statement.

Any inquiry concerning this communication or earlier communications from an examiner should be directed to Primary Examiner Allan Wilson whose telephone number is (571) 272-1738. Examiner Wilson can normally be reached 7:00-3:30 Monday-Friday (First Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ken Parker can be reached on (571) 272-2298. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Allan R. Wilson/
Primary Examiner, Art Unit 2815